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NRO REVIEW COMPLETED

[redacted] 25X1

Copy // of 11

10 May 1963

MEMORANDUM FOR THE RECORD

SUBJECT : Summary - OXCART Foreign Object Damage Meetings 3 and 6 May 1963

1. On 3 May 1963 subject damage was reviewed internally at [redacted] 25X1
[redacted] 25X1 Representatives at this meeting included agency technical and security personnel from Headquarters, [redacted] and Burbank. The 25X1
following topics were discussed:

A. Aircraft airflow patterns affecting how, when, and where damage occurs.

B. Patterns established by the history of incidents involving various aircraft, particularly the difference noted between aircraft 121 which had accumulated 20 flight hours without damage until ground runs immediately following layup for major inlet work, and aircraft 125 and 126 which incurred several damages each prior to first flight.

C. Personnel background, access to aircraft, and possible motivation for deliberate damage.

NRO 25X1 D. Lockheed intra-organizational personnel relationships at [redacted]

E. Possible methods for deliberately inflicted damage.

25X1 F. [redacted] maintenance and inspection procedures, controls, and methods.

The following conclusions were reached:

A. Damage is probably due to poor housekeeping and lack of maintenance and inspection procedures and controls rather than willful intent.

B. The possibility of deliberately inflicted damage cannot be discounted. 25X1

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2. On 6 May 1963 subject damage and corrective actions were 25X1
reviewed at [redacted] with the contractors. Attendees of this meeting included representatives of:

Headquarters:	General Marshall S. Carter
	Dr. Herbert Scoville
	Col. Sheffield Edwards
	John Parangosky
	[redacted] 25X1
USAF:	Col. Leo P. Geary
	[redacted] 25X1
25X1 [redacted]	
Lockheed:	C. L. Johnson
	[redacted] 25X1
Pratt & Whitney:	

After brief introductory remarks emphasizing the seriousness of the situation, Dr. Scoville called upon Mr. Johnson for his comments.

A. Mr. Johnson's presentation in addition to exploring all possible airflow paths involved in the incursion of damaging material, dealt with the following previously implemented corrective actions:

1) Tightened inspection procedures
2) X-ray of inlet nacelles
3) Shock trap and bypass door screens
4) Inlet opening maintenance plugs and covers
5) Personnel training
6) Inlet inspection prior to operation
7) Inlet nacelle shake effective with aircraft 128
8) Ramp cleanliness
9) Personnel security check

In addition to the above, Mr. Johnson described a one directional flapper valve to be installed in the shock trap bleed/secondary airflow passage of the inlet. The purpose of this check value installation targeted initially for aircraft 121 is to prevent material lodged in inaccessible areas of the nacelle from being carried into the engine flow path during reverse flow conditions attendant with static ground engine runs. With the proposal of this fix for all aircraft together with the nine items listed above, Mr. Johnson indicated pointedly that nothing further should be done.

B. Some discussion and a report on the area of security revealed no loop holes. The consensus of opinion again was that the damage was probably not of a deliberate nature but that this possibility would not be discounted.

C. Customer representatives lead by General Carter and Dr. Scoville, both indicating total unacceptability of the present situation, launched an extensive, detailed, and perhaps to the contractor a painful probe into the effectiveness of personnel procedural and technical actions taken and proposed thus far by the contractor. The following areas were explored:

1) Existing housekeeping standards at [redacted] are insufficient. Additional effort must be exerted to improve these standards, and particularly during inlet work where consideration should be given to approaching the white or clean room type of atmosphere. 25X1

2) Consideration should be given to procedural changes designed to establish control and accountability of small loose fastening hardware such as screws, jo-bolts, rivets, and broken drills, particularly during inlet work.

3) Controls should be implemented for removal and replacement of inlet access doors, plugs, and vented opening covers.

4) Inspection coverage should be increased and should provide surveillance during as well as after maintenance and rework operations.

5) Work operation and inspection accountability and discipline should be emphasized.

6) Consideration should be given to appointing a higher level manager or supervisor to each aircraft.

Mr. Johnson in general reacted negatively to the above items during the meeting.

7) The existing 1/4 inch mesh screens sized by performance/pressure drop considerations are too large to be effective in preventing damage.

8) The proposed one directional flapper value has definite merit in that it should reduce the possibility of damage during reverse flow ground run conditions. It, however, does not cover all of the flow paths which may contribute foreign material nor does it account for material left in the inlet during work on bypass door and spike centerbody areas.

9) The merit of full scale inlet vacuuming by means of an installed previously damaged J58 engine was discussed and determined to be questionable. The nacelle in which the latest engine sustained serious damage had been so vacuumed immediately prior to installation of this latest engine. Pratt & Whitney pointed out that some risk would be involved to the aircraft in using a damaged installed engine for this purpose.

10) Consideration might be given to incorporating additional inspection access openings for the purpose of periodically inspecting the presently blind shock trap bleed flow passages.

11) Fine mesh screening of the airconditioning system duct opening at its juncture with the main aircraft inlet should be considered.

12) In view of the apparent worse condition of aircraft 125 and 126 which have accounted for six incidents of damage prior to first flight, consideration should be given to immediate removal and return of these inlets to Burbank for material removal by shaking

similar to that done starting with aircraft 128 and up. The same consideration should also apply to aircraft 127 still at Burbank. Further, accomplishing similar rework on aircraft 121, 122, 123, and 124 during some future layup should be considered. Mr. Johnson, who was not prepared to discuss lead time or cost of this rework, strongly opposed this consideration on the basis that disassembly and subsequent reassembly would tend to build in as much susceptibility to damage after shaking the inlets as exists now. Although it was recognized that any inlet disassembly or rework contributes to damage susceptibility, Mr. Johnson's logic in part at least appeared at variance with his previous decision for and experience resulting from shaking the inlets of aircraft 128 and up.

D. Headquarters position as summarized by General Carter and Dr. Scoville included the following:

1) A task force comprising [redacted] personnel immediately will review with Mr. Johnson all applicable inspection and maintenance procedures. A report will be submitted. 25X1

2) The one directional flapper valve will be incorporated on all J58 engine powered aircraft prior to additional flight.

3) A fine mesh screen will be incorporated over the airconditioning duct at its juncture with the inlet on all J58 engine powered aircraft prior to additional flight.

4) The decision to remove and shake inlets from aircraft 125, 126, and 127 will be held pending the apparent effectiveness of the flapper valve fix on aircraft 121 and 122.

5) Aircraft 127 will be held in Burbank pending the decision to or not to remove inlets for shaking.

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E. General Carter indicated that since Mr. Johnson as contractor had final responsibility for the resolution of this problem, the above considerations and suggested actions were intended as an aid to him and that any additional help or backing called for from the customer would be immediately available. He further indicated that should this general approach discontinue to be as effective as it has in the past, it might become necessary to reorient the customer-contractor relationship.

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Development Division
(Special Activities)

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25X1 [redacted] DD/OSA [redacted] (14 May 1963)

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